

REMARKS

Administrative Overview

Claims 56-76 were examined in the Office action of January 11, 2008, and are pending.

Claims 68 and 76 are objected to under 37 CFR 1.75(c) for failing to further limit the subject matter of a previous claim.

Claims 56, 57, and 65-76 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over U.S. Publication No. 2002/0154132 (**Dumesny**) in view of "Seamless texture mapping of subdivision surfaces by model pelting and texture blending," SIGGRAPH 2000, New York, NY, pp. 471-478, ISBN: 1-58113-208-5 (**Piponi**).

Claims 58-64 are rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over **Dumesny** and **Piponi**, and further in view of U.S. Patent No. 6,707,458 (**Leather**).

Without acquiescing to the rejections, Applicants cancel claims 68 and 76 without prejudice, as reflected in the Listing of Claims above, and request that the objection to these two claims under 37 CFR 1.75(c) be withdrawn, accordingly.

Applicants respectfully traverse the rejections under 35 U.S.C. 103(a), as explained herein below. Applicants request these rejections be reconsidered and withdrawn.

No new matter is added. Upon entry of this paper, claims 56-67 and 69-75 will be pending.

Independent claims 56 and 70, and their dependent claims are each patentable over **Dumesny** in view of **Piponi**

Applicants respectfully traverse the rejections of claims 56 and 70 and their dependent claims. The prior art fails to teach a method of wrapping texture onto a 3-D surface within an *arbitrarily-shaped, user-defined region*.

Applicants do not agree with the Examiner's argument on page 12 of the Office Action that the use of "may" or "such as" in the specification of the present application to describe certain possibilities or examples of arbitrarily shaped user-defined regions broadens the scope of this term. On the contrary, this is *narrowing* – by reciting "arbitrarily-shaped, user-defined region," it is clear that the method *must be capable* of wrapping texture onto a surface of a 3D virtual object within a region of *an arbitrary user-defined shape*, including those described in the specification.

Neither **Dumesny** nor **Piponi** is capable of doing this. **Dumesny** uses projection methods that do not work for arbitrarily-shaped regions. The selected polygonal surface in **Dumesny** is not an "arbitrarily-shaped, user-defined region" – it is restricted to an entire polygonal face of an object. In contrast to **Dumesny**, the present invention allows wrapping texture within an

arbitrarily-shaped, user-defined region, for example, as seen in Figure 21C below (reference 1806):

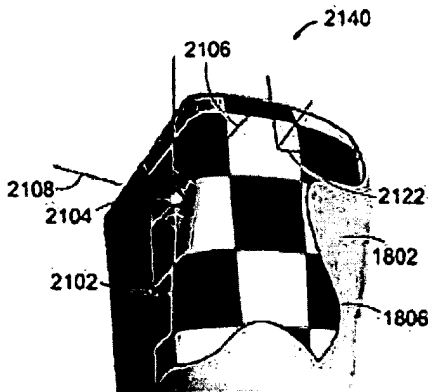


FIG. 21C

Region 1806 of Figure 21C has an irregular, arbitrary shape drawn by a user onto the surface of the three-dimensional object. It does not cover an entire face of the object, and, in fact, overlaps various sides of the object. The object itself is not limited to sharp-edged polyhedra, but can have soft edges.

This *ability* to wrap texture within arbitrarily-shaped user-defined regions is an explicitly stated requirement of the claim and is not taught or suggested in any of the cited art.

Like **Dumesny**, the pelting procedure described in **Piponi** also does not operate on user-defined, arbitrary shapes. The goal of the system described in **Piponi** is to apply texture to the *entire* 3D surface. Note, **Piponi** expressly states, “we stress that although we are talking about splitting up the [3D] model our *ultimate goal is to leave the original [3D] model intact.*” (p. 474, emphasis added). In fact, **Piponi** only describes a method of making a “cut” so as to enable pelting. (See **Piponi**, p. 473, observing that for “a model topologically equivalent to a sphere we need only make one cut in order to have a model that this topologically equivalent to a disk”, emphasis added). **Piponi** defines a “cut” not as selecting a user defined, arbitrary shape but as a “collection of edges that form a connected tree.” (p. 473). Furthermore, the pieces generated by one or more cuts in **Piponi** cannot be arbitrary, but must be overlapping. (See p. 474, observing that “[i]f we split up the model into non-overlapping pieces we face the problem that the domain control of points near the boundary may in fact lie in a neighbouring region. So we choose to work with a set of overlapping pieces.” emphasis added).

Therefore, neither **Dumesny** nor **Piponi** (nor their combination) discloses or suggests a method or system of selecting and texture mapping *user-defined, arbitrary shapes*. Thus, these references do not disclose all limitations of claims 56 and 70. Applicants request the rejections of these claims be reconsidered and withdrawn at least on this basis, and that claims 56, 70, and all their dependent claims be allowed in due course. Applicants reserve the right to present further arguments regarding the patentability of the dependent claims, should this become necessary.

Dependent claims 58-64 are each patentable over Dumesny in view of Piponi, and further in view of Leather

Dependent claims 58-64 each depend directly or indirectly from independent claim 56. As explained above with respect to claim 56, neither **Dumesny** nor **Piponi** (nor their combination) discloses or suggests a method or system of selecting and texture mapping *user-defined, arbitrary shapes*.

Leather does not cure the deficiencies of the combination of **Dumesny** and **Piponi** in their failure to teach the method of claim 56. **Leather** appears to describe texture coordinate displacement for bump mapping. **Leather** does not speak to texture mapping user-defined, arbitrarily-shaped regions.

Furthermore, a bump map does not actually model surface variations. See U.S. Patent No. 8,825,851 referred to in **Leather** at col 1, lines 49-53 as describing bump mapping. The '851 patent states at column 2, lines 25-29, "[w]hile in some instances such minute surface characteristics might be actually modeled, the time required for translating and rendering a 3D object with such a complex surface would be prohibitive for most real-time or interactive gaming applications."). Instead, a bump map *approximates* the surface characteristics (See '851 Patent, column 2, lines 31-33) by employing methods such as Normal perturbation (See '851 Patent, column 2, line 47; '851 Patent, column 4, lines 14-16, 40-41). By contrast, embodiments of the invention that wrap an embossed texture (e.g., claim 63) necessarily produce an actual three-dimensional geometry (e.g., an actual embossed geometry).

For at least these reasons, claims 58-64 are each patentable over the cited references. Applicants request the rejections of these claims be reconsidered and withdrawn at least on this basis, and that claims 58-64 be allowed in due course. Applicants reserve the right to present further arguments regarding the patentability of these claims, should this become necessary.

CONCLUSION

Applicants contend the claims are in condition for allowance. Applicants respectfully request reconsideration and withdrawal of all rejections, and allowance of claims 56-67 and 69-75 in due course. The Examiner is hereby cordially invited to contact Applicant's undersigned representative by telephone at the number listed below to discuss any outstanding issues.

Respectfully submitted,

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